

FS-8705-32 – IDTech Gateway And IDTech Protocol Driver

DATASHEET – Rev 1

DESCRIPTION

If you want to expose IDTech data using another protocol you need a protocol gateway.

In this document we describe the gateway interface developed to provide a gateway to IDTech products allowing for easy integration into Building and Industrial Automation Systems using protocols like BACnet and Modbus.

The gateway consists of

- A Physical Device eg. FSB3510-Series or FS-QS-Series
- Firmware

Firmware Consists of

- Protocol Driver for IDTech
- Protocol Driver (other eg BACnet) (More than 1 can be linked)
- Gateway Engine (connects the 2 protocols. Provides all the gateway functionality.)

Therefore complete documentation of the delivered product consists of

1. Manual for IDTech Driver – connections, settings, trouble shooting
2. Manual for Physical Gateway – Install, power, trouble shooting
3. Manual for Gateway Configuration and Software tools – How to configure the gateway
4. Manual for 'other' protocol. Such as BACnet.

The IDTech protocol driver is capable of being linked with other FieldServer drivers to form regular FieldServer firmware that can be installed on QuickServer and other FieldServer gateways. When messages from the IDTech are received, they are parsed and the internal data caches / arrays of the FieldServer are updated with status information. Other drivers can access this data and serve using other protocols such as BACnet and Modbus and many others.



EXPOSED IDTECH DATA

This data consists of the following Data Types

INPUT 1-104 [0: off, 1: on]
MAIN TAMPER 1 [0: error, 1: ok]
READER 1-8 [0: dead, 1: alive]
UIM 1-4 [0: dead, 1: alive]
OUTPUT 1-104 [0: off, 1: on]
READER 9-16 [0: dead, 1: alive]
UOM 1-4 [0: dead, 1: alive]

IDTECH COMMUNICATIONS AND SERVICES IMPLEMENTED

Uses UDP

Broadcast Port = 6006

Polling Port = 6001

POLLING (01H) The Polling function seems to do two different things depending on the status of the system. If there are no events then it returns the status of the inputs. If there are events then it returns a series of events.

CONTROLLER INFORMATION UPLOAD TO PC (13H) This command would be good to call at startup to get the current version of the firmware on the IDTech device. Returns the CONTROLLER NAME, CONTROLLER VERSION, CONTROLLER MAC ADDRESS

INPUT/OUTPUT PORT STATUS UPLOAD TO PC(16H) This command seems to get just the input data and is probably a better command than the Polling function.

LIMITATIONS AND UNRESOLVED

Not known if we can support IDTech encryption method.

Chipkin will not be using the IDTech SDK

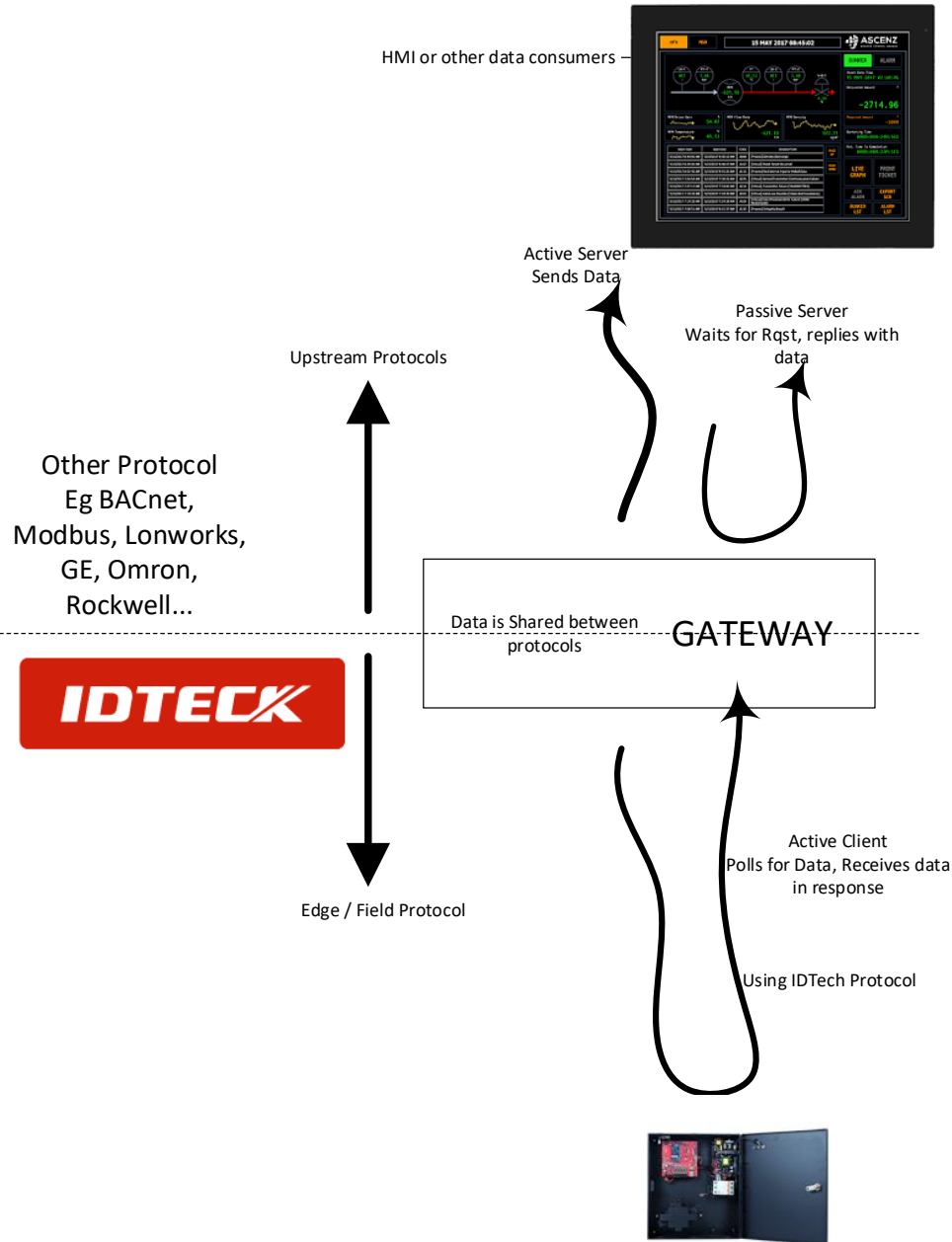
Chipkin will implement the protocol using the document

“iEDC-MAIN-PROTOCOL_v0.18_20180205.docx”

Chipkin will only implement the services listed in the ‘Implemented’ section of this document.

CLIENT / SERVER GATEWAY DATA MODELLING

This diagram shows how data flow between the protocols and the gateway.



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CONNECTION FACTS

FIELDSEVER MODE	NODES	COMMENTS
Active Client	Many	One gateway can connect to many IDTech devices provided the IP Addresses are different.
Server	0	This Driver / gateway cannot be used to simulate the IDTech panel.

PROPOSED GATEWAY FIRMWARE RELEASES

It is possible to couple more than one protocol at a time. Therefore the following firmware is proposed.

IDTech 8705-32-01 –

IDTech, ModbusRTU, ModbusTCP, BACnetIP, BACnet MSTP, EthernetIP, GE EGD, Omron Fins

IDTech 8705-32-02 –

IDTech, Lonworks

Additional firmware bundles generated as required.

FORMAL DRIVER TYPE

UDP

ActiveClient

COMPATIBILITY

FIELDSEVER MODEL	COMPATIBLE
FS-2010/2011/4010 (Legacy)	Yes
FS-35 Series	Yes
FS-QS Series	Yes
FS-ProtoAir Series	Future Implementation

CONNECTION INFORMATION

Connection Type: EIA232
Baud Rates: Driver Supports : 110; 300; 600; 1200; 2400; 4800; **9600**;
19200; 28800; 38400; 57600 Baud
FX2000 supports: 9600
Data Bits: Driver Supports : 7,**8**
FX2000 supports: 8
Stop Bits: Driver Supports : **1,2**
FX2000 supports: 1
Parity: Driver Supports : Odd, Even, **None**
FX2000 supports: none
Hardware Interface: N/A
Multidrop Capability: No

DEVICES TESTED

DEVICE	TESTED (FACTORY, SITE)
FX2000	WestFraser Mills (May/June 2009)

CONNECTION CONFIGURATIONS

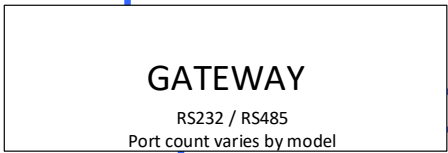
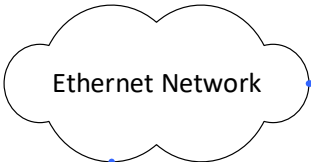
Multiple upstream protocols and connection supported. See list of FieldServer Drivers.

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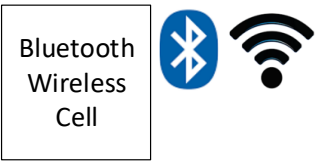
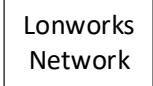
- Other serial protocols such as
- Bacnet MSTP
 - Modbus RTU, ASCII, and other flavors
 - Rockwell DF1
 - GE-SNP
 - JCI Metasys N2
- And more...

Over 120 Protocols
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- Other ethernet protocols such as
- HTTP, XML
 - BACnet IP or Eth
 - Modbus TCP
 - AB-CSP
 - Ethernet/IP
 - SNMP, Telnet
 - GE-EGD, GE-SRTP
 - Omron FINS
 - DNP3
- And more...

- Other bus protocols such as
- Profibus
 - DeviceNet
 - DH+
 - Modbus+
 - ControlNet
 - BACnet Arcnet



IDTech Panel



Your Security Partner



CONFIGURATION EXAMPLES (BACNET SHOWN AS EXAMPLE)

```
Data_Arrays
Data_Array_Name , Data_Format , Data_Array_Length
DA_INPUTS      , Uint16      , 104
DA_OUTPUTS     , Uint16      , 104
DA_MAIN_TAMPER , Uint16      , 1
DA_READER      , Uint16      , 16
DA_UIM         , Uint16      , 4
DA_UOM         , Uint16      , 4
DA_POLLING     , Uint16      , 100
```

Define Data Arrays.
One Set for each Panel.

Make sure the Data arrays are
long enough

```
//=====
//
// IDTech - Client
//
Adapters
Adapter , Protocol
N1      , IDTech_UDP

Nodes
Node_Name , Node_ID , Protocol , Adapter , IP_Address
Panel1    , 1      , IDTech_UDP , N1      , 192.168.1.210
```

Define the connection and a node
for the IDTech Panel

```
//=====
//
// IDTech - Client Side Tasks
//
Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Scan_Interval
Readtask Polling    , DA_POLLING      , 0                  , RDBC     , Panel1    , 0.000s

Map_Descriptors
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Function , Node_Name , Address , IDTECH_DataType
Store Inputs        , DA_INPUTS       , 1                  , passive , Panel1    , 1       , Inputs
Store Output        , DA_OUTPUTS      , 1                  , passive , Panel1    , 1       , Outputs
Store Tamper        , DA_MAIN_TAMPER , 1                  , passive , Panel1    , 1       , Main_Tamper
Store reader        , DA_READER       , 1                  , passive , Panel1    , 1       , reader
Store UIM           , DA_UIM          , 1                  , passive , Panel1    , 1       , uim
Store UOM           , DA_UOM          , 1                  , passive , Panel1    , 1       , uom
```

This active task causes the “polling”
message to be sent as often as
possible.

When the panel responds with a
data payload. The payload is
extracted. These ‘Passive’ tasks are
then used to tell the gateway where
to store the data payload.

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```
//-----  
//  
//      Server Side  
//  
  
Connections  
Adapter , Protocol  
N1      , Bacnet_IP  
  
Nodes  
Node_Name , Node_ID , Protocol  
VirtualPanel , 37101 , Bacnet_IP  
  
Map_Descriptors  
Map_Descriptor_Name , Data_Array_Name , Data_Array_Offset , Fun , Server , VirtualPanel , BI , Present_Value  
,  
Input 1 , DA_INPUTS , 1 , Server , VirtualPanel , BI , Present_Value  
,  
Input 2 , DA_INPUTS , 2 , Server , VirtualPanel , BI , Present_Value  
,  
Input 3 , DA_INPUTS , 3 , Server , VirtualPanel , BI , Present_Value  
,  
Input 4 , DA_INPUTS , 4 , Server , VirtualPanel , BI , Present_Value  
,  
...  
Input 104 , DA_INPUTS , 104 , Server , VirtualPanel , BI , Present_Value  
,  
  
Output 1 , DA_OUTPUTS , 1 , Server , VirtualPanel , BV , Present_Value  
,  
Output 2 , DA_OUTPUTS , 2 , Server , VirtualPanel , BV , Present_Value  
,  
Output 3 , DA_OUTPUTS , 3 , Server , VirtualPanel , BV , Present_Value  
,  
Output 4 , DA_OUTPUTS , 4 , Server , VirtualPanel , BV , Present_Value  
,  
...  
Output 104 , DA_OUTPUTS , 104 , Server , VirtualPanel , BV , Present_Value  
,  
  
UIM 1 , D , 1 , Server , VirtualPanel , BI , 1001 , Present_Value  
UIM 2 , D , 2 , Server , VirtualPanel , BI , 1002 , Present_Value  
,  
 , Server , VirtualPanel , BI , 1003 , Present_Value  
,  
 , Server , VirtualPanel , BI , 1004 , Present_Value  
,  
 , Server , VirtualPanel , BI , 1001 , Present_Value  
,  
 , Server , VirtualPanel , BI , 1002 , Present_Value  
,  
 , Server  
,  
 , Server  
  
Reader 1 , DA_READER , 1 , Server ,  
,  
Reader 2 , DA_READER , 1 , Server ,  
,  
Reader 3 , DA_READER , 1 , Server , VirtualPanel , BI , 2001 , Present_Value  
,  
...  
Reader 16 , DA_READER , 16 , Server , VirtualPanel , BI , 2016 , Present_Value  
,  
Main Tamper , DA_MAIN_TAMPER , 1 , Server , VirtualPanel , BI , 3001 , Present_Value  
,  
,
```

EOS commands result in a 0 for off and 1 for on. Zero is an invalid state for bacnet multi state objects. In this scaling 0..1 is mapped onto 1..2.

In other words: EOS results in 0,1

You can see how the BACnet objects are connected to the Data Arrays that the IDTech data get stored in. Thus the BACnet objects share the data with the IDTech

You can allocate any BACnet object types and instance numbers

CUSTOMER SUPPORT

IDTech Driver for FieldServer was developed by Chipkin, and we are proud to provide support for our products. For technical support, sales and customer service, please call us at 1 (866) 383-1657.

Thanks for choosing Chipkin's products and integration services to meet your building and industrial automation requirements!

Chipkin™ is a building and industrial automation protocol expert. We develop, configure, install and support gateways (protocol converters), data loggers and remote monitor and controlling applications. Founded in October 2000, Chipkin provides expert solutions for converting BACnet®, Modbus®, and LonWorks®—to name just a few—and enabling interfaces for HVAC, fire, siren, intercom, lighting, transportation and fuel systems. The high-quality products we offer (including those from other vendors) interface with Simplex™, Notifier™, McQuay™, GE™ and many others—so you can rest assured that we will select the most appropriate solution for your application.

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REVISION HISTORY

DATE	RESP.	DRIVER VERSION	DOCUMENT REVISION	COMMENTS
25 Jun 2018	PMC	0.00	0	Created
15 Jun 2021	YC	0.00	1	Updated to latest template